ENVIRONMENTAL ENGINEERING SURVEY
U. S. NAVAL SUBMARINE BASE
GROTON, CONNECTICUT

NORTHERN DIVISION

ENVIRONMENTAL BRANCH

NAVAL FACILITIES ENGINEERING COMMAND

DEPARTMENT OF THE NAVY

FEBRUARY 1976

PHILADELPHIA, PENNA.

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U.S. NAVAL SUBMARINE BASE

GROTON, CT

UIC N00129

BY

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NORTHERN DIVISION

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FEBRUARY 1976

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1. Executive Summary

1.1 Purpose

The purpose of this survey is to conduct a technical inspection of the U. S. Naval Submarine Base to insure the correctness of operation and maintenance of each of the activity's sanitary/environmental facilities. Special emphasis is placed on the prevention of health hazards and legal violations created by utility deficiencies. In addition, by affecting a working liaison between the Engineering Field Division and the activity, professional environmental engineering consulting services will be provided to the Subase.

1.2 Background

NAVFACINST 5450.19B of 15 Oct 1974 assigns to the Environmental Engineering Branch of Northern Division the responsibilities of establishing uniform policies and procedures regarding the development and systematic updating effort for a comprehensive Environmental Engineering Survey. Increased scope of Federal, State and local legislation requires stricter environmental regulation. The Naval Environmental Protection Support Service (NEPSS) has been established to assist the Navy in obtaining information pertinent to environmental protection. It is the Navy's policy to seek out and identify sources of pollution and to establish programs for corrective actions.

1.3 Action Items

1. Purchase an automatic chlorinator for the Base potable water supply.

2. Supervise ship to shore water connections at pier areas.

3. Initiate projects to bring inadequate fire protection systems to an acceptable condition.

4. Investigate the origin of contamination in the storm system near Building #3.

5. Install a sluice gate at North Lake to prevent contamination by swamp runoff.

6. Request funds from CINCLANTFLT to perform an inflow infiltration study on the Base sanitary sewer system.

7. Construct a "Foreign Garbage Cooker" to prepare wastes generated from foreign ports for disposal.

8. Review Project W040J, Spill Equipment Support Facility. Upon approval, prepare and submit supporting documents.

9. Complete the SUBASE SPCC Plan.

10. Review Project W040I, Spill Containment Transformers. Upon notification of approval, Northern Division will submit project for funding.

11. Review Project W040K, Oily Waste Treatment Facility. Upon approval, prepare and submit supporting documents.

12. Complete corrective actions necessary to eliminate Industrial Waste presently being held on Base.

13. Investigate sink drains in the photo lab to assure photo chemical wastes are not discharged to the storm system.

ENVIRONMENTAL ENGINEERING SURVEY

2. Survey Background

2.1 Name and Place of Activity: Naval Submarine Base, Groton, CT

2.2 Date of Survey: 29 Sep to 3 Oct 1975

2.3 Survey Team:

P. Saulnier	San. Engineer, Environ. Engr. Section
A. Rhoads	Mech. Engineer, Environ. Engr. Section

2.4 Personnel Contacted:

CDR D. W. Harned	Public Works Officer
LT A. Johnson	Assistant PWO
LT R. Farmer	Public Works Office
R. Ham	Director, Planning
J. Wallace	Director, Engineering
R. Russ	Supv. Maintenance Eng.
W. Morris	Supv. Transportation
M. Browning	Gen. Foreman, Power Plant
D. Gabriele	Civil Engineer, PW
E. Tracy	Public Works Engineer
P. Ficarra	Supply Department
L. Brisson	Supv., Potable Water/Sanitary
ENS S. Dove	Public Works Office
J. Hesney	Planner/Estimator, PW
M. Heryla	Operator, Swimming Pool
LTJG Evans	Recycling Coor., Seabees
LT Sorons	Commissary
LTJG Bryce	Port Services
LT Morton	Environ. Health Officer
Chief Hill	Damage Control Center
PH-2 Sill	Photo Lab (Bldg 106)
H. Mierzejwski	Def. Property Disp. Service
E. Sitty	Groton Town Engineer
A. Dion	Groton Water Department
LT Bair	Coast Guard, Office of the Captain of the Port
R. J. Leconche	Rep., Capital Control Co.
C. Mobus	Baldwin-Stewart, Inc.

3. POTABLE WATER

Ref: (a) Report on Fresh Water and Salt Water Systems, James Minges and Associates, Inc., et. al. Dec 31, 1974
(b) OPNAVINST 9930.1C, 5 Jan 1971

The Subase receives its total potable water supply, which is runoff from the Poquonnock River Drainage Basin, from the City of Groton. Several methods of treatment are performed by the City consisting of coagulation, flocculation and sedimentation followed by sand filtration, pH control, chlorination and fluoridation. The water supply is adequate and capable of meeting the present and future needs of the activity.

The Base has an extensive water distribution system utilizing both 12 and 8 inch cast iron mains which are fed individually through metering pits owned and maintained by the City of Groton. The system is broken into two distinct sections, a low and high service area. The low service area, which is considered the industrial area, is supplied by both the 8 and 12 inch mains - the 12 inch main contributing roughly 90% of the total water supplied. This system contains several sub-systems, many being closed loop networks which provide all potable water to the pier and berthing areas. There are three water storage tanks in the lower service system having a combined capacity of 1 million gallons. Provisions for level sensors and alarms for the water storage tanks have been incorporated into the Utilities Improvement Project P-090 (FY-76).

The high service area consists of several 8" trunk lines, some of which require boosting systems to maintain proper water pressure. Two major subsystems having booster stations are the hospital and ammunitions holding areas. The high service area maintains a 0.2 million gallon tank at the hospital.

Chlorine residual and total coliform tests are done by the Environmental Health Office. Samples are taken at several points in the water distribution system. As a result of this testing program, it has been found that the chlorine residual is frequently very low or zero throughout the Base. The Subase is located at the end of the city's service line and when the water reaches the activity the chlorine residual has dissipated. The City of Groton chlorinates its water in accordance with U. S. Public Health Service regulations. Increasing chlorination at the source to correct the activity's deficiency would not only be costly to the City but would result in over chlorination near the source. The activity should initiate corrective action by providing an automatic chlorinator on the 12" main at the east gate of the Subase.

The total coliform testing presently being done at the Base is a good indicator of water contamination. Additional equipment necessary to perform fecal coliform testing is available through the NEPSS Program if requested by the Activity.

Reference (a) has revealed that the high service water system requires improved pressure. This deficiency shall be corrected through Milcon Project P192, Utilities Improvement (FY-78), which includes a 980K gallon standpipe, 8,200 ft. of piping, a new booster system and an auxiliary power supply.

A review of the Base's Master Plan indicates that no increase in the water demand is anticipated in the near future. Records of the past 5 years' potable water usage have not revealed any excessive water demand.

As directed by reference (b), it is the responsibility of the Activity to maintain close supervision during ship-to-shore connections to prevent cross connections and contamination of the water supply.

4. NON-POTABLE WATER

Ref: (a) Report on Fresh Water and Salt Water Systems, James Minges and Assoc., Inc., et. al
(b) Fire Protection Engineering Survey of SUBASE Nlon of 4 May 1973

4.1 Salt Water Systems

The Subase has two non-potable salt water systems, both originating at Building #29. The system extending to Building #88 is a 10" cement lined cast iron pipe installed in 1962 and is considered to be generally in good condition. The other system, constructed in the mid 1940's, consists of 8" and 10" cast iron lines extending to Pier #2 in one direction and Pier #17 in the other. This system is suspected to be in a deteriorated condition due to the corrosive environment and system age. Reference (a) incorporates a salt water system review and is in agreement with reference (b) that the Activity has inadequate water supplies for fire protection. Milcon Project P-197 (FY-79) has earmarked 300K for fire protection systems. However, it is questionable as to whether this amount is adequate considering the recommendations and cost analysis in reference (a). Northern Division Fire Protection Engineering Personnel, Code 0408, conduct surveys at periodic intervals to determine deficiencies and make resolutions for fire protection systems. Code 0408 personnel will assist Activity personnel in initiating projects for fresh water and salt water systems in order to provide adequate fire protection at the Subase.

4.2 Storm Water System

The Subase has an extensive underground storm water system which discharges directly into the Thames River. Water Quality criteria for the Thames River is provided in Appendix (A). The storm system is considered generally adequate, however, certain sectors of the system have had flooding conditions during heavy rain. Milcon Project P-197 (FY-79) incorporates upgrading of this storm system.

The Federal Water Pollution Control Act Amendments of 1972 prohibit the discharge of any effluent into a navigable body of water other than storm runoff without application of a permit through the National Pollution Discharge Elimination System (NPDES).

The Subase has initiated several special projects to comply with the Water Act.

Special Project C13-72 was completed in October 1975. This project connected various floor drains from both Buildings #164 and 107, and chemical waste from various locations in the industrial area to the sanitary system.

Special Project C13-73 diverted the boiler blowdown to the sanitary sewer and was completed in September 1975.

An extensive storm water analysis is being accomplished through the Naval Environmental Protection Support Service, NEPSS. This study's purpose is to investigate the possibility of contamination in the storm system. It has been discovered through visual inspection that the storm system near the northwest side of Building #3 is contaminated with sanitary waste. This deficiency should be investigated using a dye test to find the cross connection, since a discharge of this type to the Thames River is in direct violation of Public Law 92500 and Executive Order 11752.

The present condition of the industrial waste holding area represents a potential pollution source to the nearby swamp area. The drainage from this swamp travels through both open trenches and underground lines, past North Lake and eventually to the Thames River. The southern end of North Lake is connected to this drainage system by an overflow weir and drain line. Although this line enters the system 6" above the normal flow level, it is possible for the lake to be contaminated with swamp water during high water flows. It is therefore recommended that this line be fitted with a sluice gate which could be opened but normally kept closed to prevent contamination of the lake.

5. SEWAGE SYSTEMS

5.1 Sewage Collection System

The sewage collection system has been extensively studied by James Minges and Associates, Inc., under A/E contract No. N62472-74-C-1061. A report of these findings, submitted on 31 December 1974, is summarized in the following paragraphs.

The capacity of collection system is adequate for the facilities presently served. However, several segments would have to be modified to accommodate planned projects. Furthermore, the system incorporates illegal bypass-overflow lines and excessive inflow-infiltration in certain segments.

The Minges study produced 16 projects for the correction of existing and future deficiencies. P-196, Sanitary Sewer System Improvements, FY-79, incorporates the first 14 projects and will correct all existing deficiencies. The fifteenth project proposed modification to accommodate future base development. The project has not been submitted for funding since the SUBASE Master Plan is being revised by Northern Division's Planning Division.

Preliminary investigation into system inflow-infiltration indicates that the long-range benefits to the Government are sufficient to justify an in-depth inflow-infiltration study to define specific points in the system which are contributing to the problem. The sixteenth project in the Minges report identifies the areas to be tested. Funding for this survey should be requested from CINCLANTFLT (Subase major claimant). Upon completion, Northern Division is available for determining eligibility of proposed projects for funding by the Pollution Abatement Program.

At the present time, the USS Fulton and six submarines are berthed at the Connecticut State Pier No. 1. Sewage collection facilities are available for the Fulton only. In order to comply with OPNAVINST 6240.3D, Ship Wastewater Collection Ashore (SWWCA) facilities must be provided for the submarines berthed at State Pier. P-196 has been amended to include this SWWCA project an at estimated cost of $174,000.

Sewage from ships berthed at the Subase piers is also discharged directly to the Thames River. Project P-157, FY-74, provides the necessary SWWCA system for transfer of sewage to the base sanitary sewer. Facilities are expected to become operational by the time this report is issued.

5.2 Sewage Treatment Plants

The Subase operates four sewage treatment plants: two service the off-base housing, and one each serve the Upper and Lower Base collection systems. All facilities are operational, however, the Upper and Lower Base plant structures are generally in poor physical condition due to their age.

All four treatment plants are of adequate capacity to handle and treat the sewage flows generated.

None of the four plants provide the degree of treatment required by EPA 1977 effluent standards (secondary treatment). Extensive alterations and additions would be required to bring the plants up to acceptable standards of performance. P-093, Connection to Municipal Sewer System has been programmed to provide funds for the connection of Subase sewage systems to the Town of Groton municipal sewer system. Construction is expected to be completed by September 1976.

6. SOLID WASTE

References: (a) OPNAVINST 6240.3 of 24 Apr 1975
(b) DOD DIRECTIVE 6050.3 of 19 Nov 1974
(c) SUBASEINST 6240.1A

6.1 Disposal

Solid waste is collected by both private contractor and station forces, with disposal to the Groton municipal landfill. The Subase operates one 40 cubic-yard dinosaur, and three Dempster compactor trucks - one of which is presently out of service.

The Subase estimates its solid waste generation rate at 10,000 tons per year. Approximately 45 percent is collected by private contract, and the remainder by station forces. Additional details on types of wastes collected and cost of disposal can be found in Appendix (B), Shore Installation Solid Waste Questionnaire Format.

The cost of disposal by private contractor is roughly three times that by station forces. This fact has prompted Subase to request Northern Division to evaluate the entire solid waste disposal system. Response to ESR No. 00129-2373 will include an evaluation of alternative methods of disposal, including cost analyses. The anticipated completion date is 1 March 1976.

The Groton landfill site is rapidly approaching capacity and shortly will not be able to accept Subase solid waste. As part of its short and long term solution to the problem of solid waste disposal, Groton is planning the construction of a solid waste shredding facility. It will be set up at the existing site in order to extend its remaining life. The shredder will be relocated when a new landfill site is established.

Groton has accepted the Subase's solid waste without cost to the Federal Government for several years. It has been understood that when the town landfill site was depleted the Navy would share in the capital costs of a new site. P-199, Solid Waste Reduction Plant (FY-76), provides funding for the Navy's share of the cost of the shredder, based on proportionate usage.

6.2 Foreign Garbage

Revised U. S. Department of Agriculture (USDA) requirements have reinforced existing regulations concerning the entry of foreign-generated garbage into the United States. Reference (a) provides guidelines for the proper handling of foreign foods and garbage. The Subase intends to comply with the regulations by cooking the foreign garbage in a converted Dempster Dumpster. Figure 6-1 shows

the basic design concept which has been adopted by several naval activities and approved by U.S.D.A. Standard operating procedure consists of placing two feet of water in the dumpster and adding garbage until the unit is 2/3 full. The garbage is then cooked for 30 minutes at 212°F. The cooked garbage may then be disposed of through conventional methods.

6.3 Recycling and R^4

Recycling of solid waste is presently accomplished in accordance with references (b) and (c). Receipts from the sale of materials are placed in a fund administered by the Comptroller and reserved for environmental enhancement programs. Approximately 30 tons of glass containers are reclaimed and sold annually at $25/ton, and 0.5 ton of aluminum cans is sold at $300/ton. The Seabees who operate the recycling program, anticipate collecting newsprint in the near future. Cardboard is recycled by the base commissary.

Reference (b) calls for Defense Agencies to practice resource recovery of solid and other waste materials. To implement this directive, NAVFAC Headquarters has developed a Recovery and Reuse of Refuse Resources Program, or R^4 Program. The purpose of the R^4 Program is to establish a means of evaluating solid waste recovery and recycling as an alternative to burial in landfilling, burning in incinerators, or otherwise disposing in a manner harmful to the environment and wasteful of our natural resources. Phase A of the R^4 Program was initiated at the activity in early December. The Subase has provided its input to Phase A. This information, along with that obtained from various regional agencies, will be used by Northern Division to determine if a Phase B is warranted.

SCHEMATIC OF CONVERTED DUMPSTER- GARBAGE LOCKER

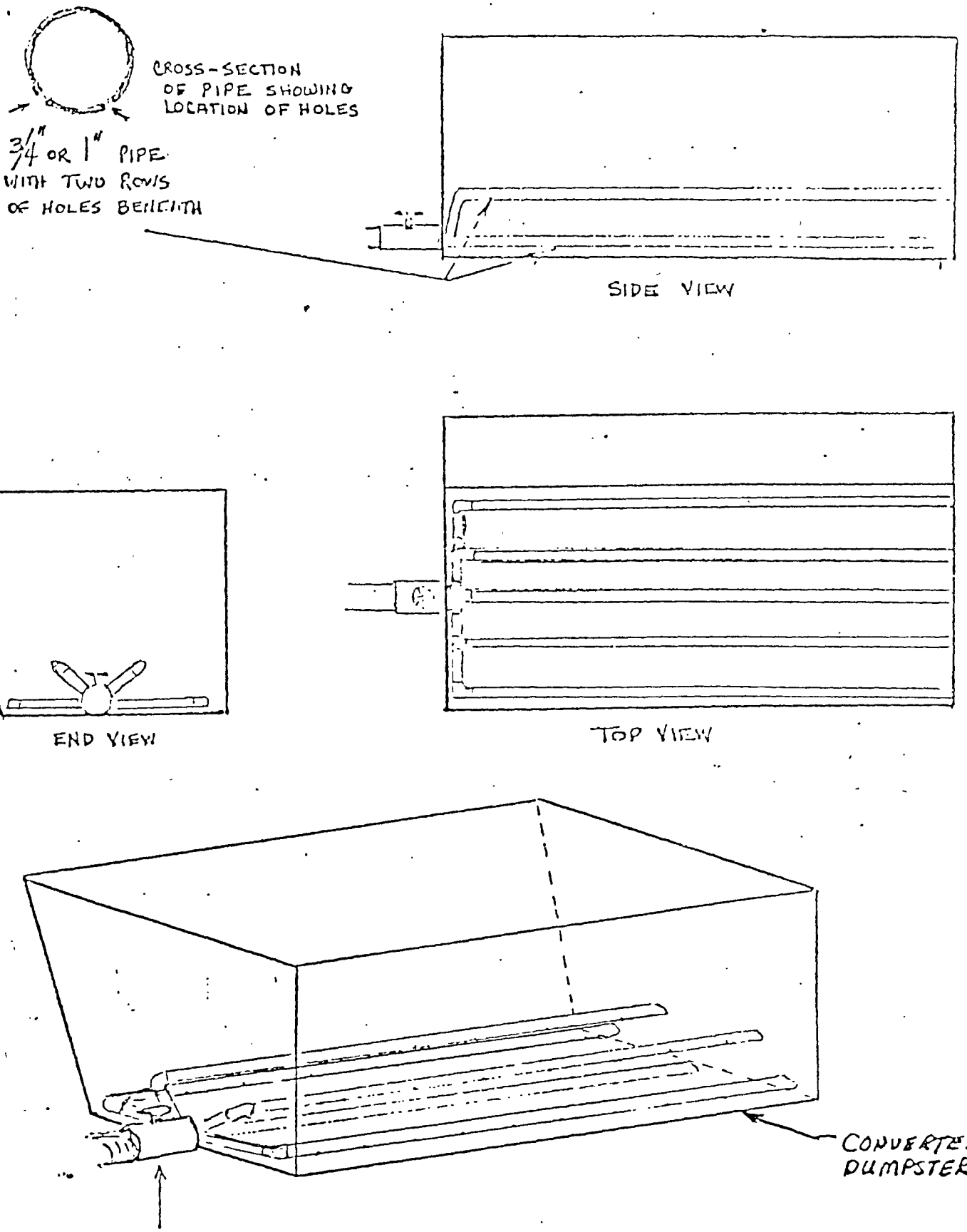
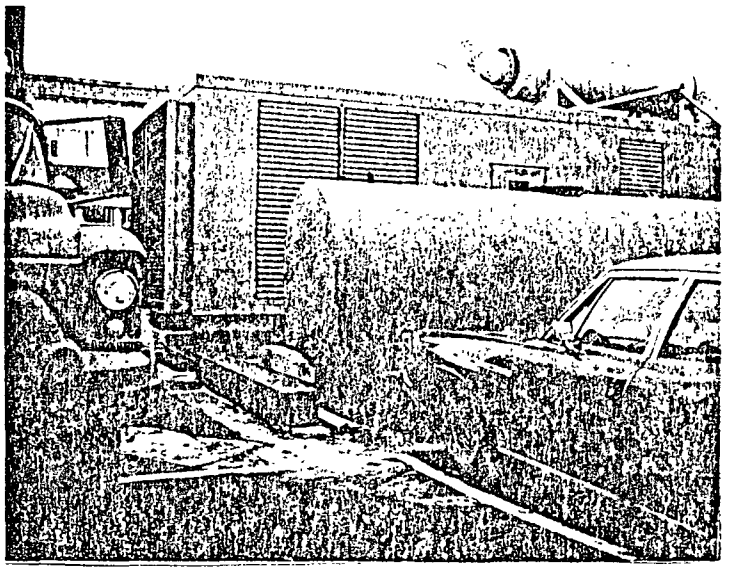
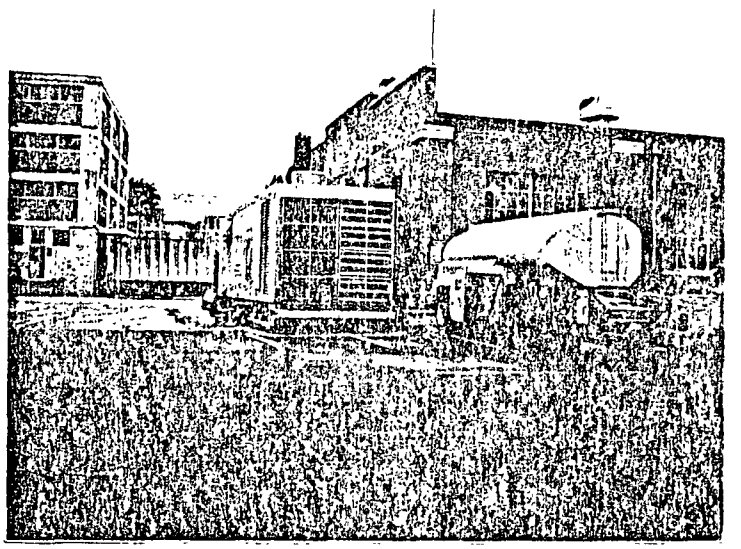


Figure 6-1

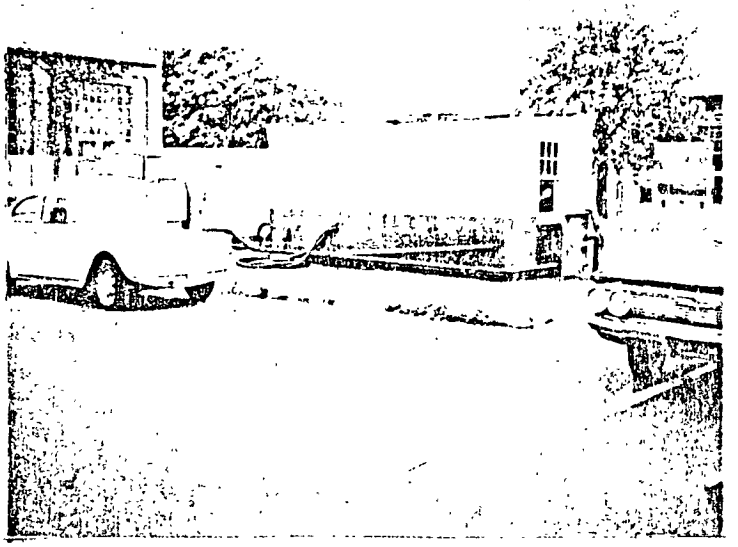


BLDG. 173

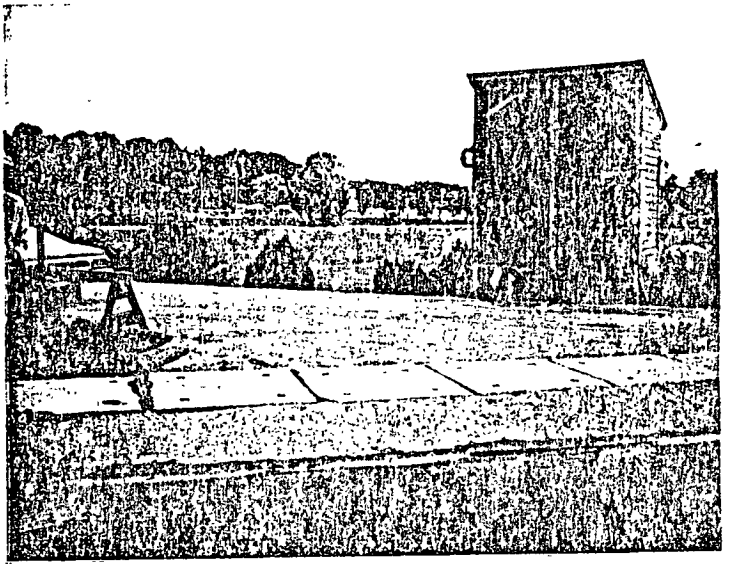


BLDG. 85

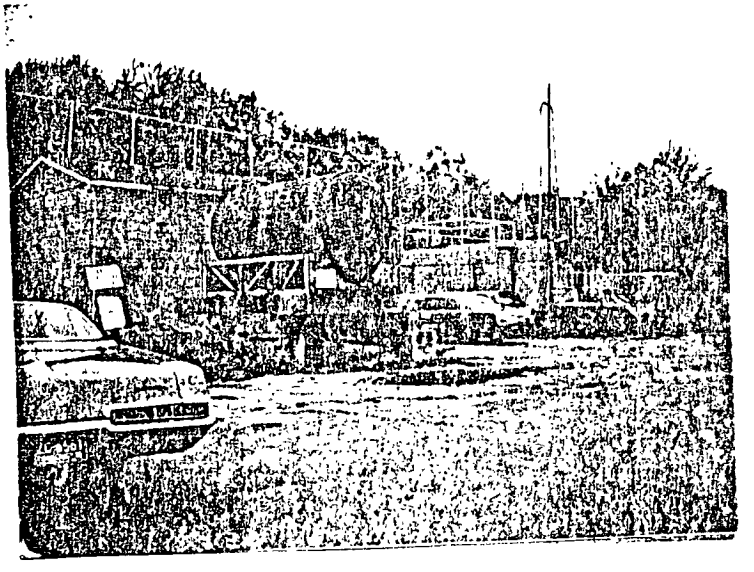
Figure 8-1



BLDG. 344



BLDG. 310



BLDG. 346

FIGURE 8-2

9. SWIMMING POOLS

Ref: (a) NAVDOCKS MO-210; Maintenance and Operation of Water Supply Systems

9.1 Indoor Pool

Special services maintains an indoor swimming pool at the SUBASE. Chlorine residual and pH tests are performed daily by station forces. Total coliform is tested weekly by the Environmental Health Office. The chlorine residual is controlled by testing and manually adjustment as required. Free available residual chlorine in the water should be maintained between 0.4 and 0.6 PPM. Free residual chlorine levels above 0.75 PPM may irritate swimmers skin, eyes and mucous membranes. Proper chlorination is relative to pool loading. Pool operation may be enhanced by the addition of an automatic chlorinator.

Proper pH must be maintained in pool waters to achieve effective disinfection. The optimum pH for pool water is from 7.2 to 7.6. Higher values may reduce effective chlorine disinfection, cause swimmer irritation and increase turbidity in hard water. Ph lower than 7.0 may cause rapid dissipation of chlorine.

The swimming pool's filter backwash is presently connected to the storm sewer system. Project W040F (Appendix K) has been prepared to reserve funds for the connection of this backwash water to the sanitary sewer.

9.2 North Lake

North Lake is used by base personnel for swimming and recreation. This Lake has an adequate chlorination system consisting of a pump house with automatic chlorination and recirculation. The south end of the lake has a clean out line directed to the storm system. Pollution from the storm system is a potential problem and recommendations are included in Section 4.2

9.3 Rock Lake

Rock Lake is used by the enlisted personnel for swimming. Activity personnel chlorinate by dumping powdered hypochlorite directly into the lake from a small row boat. Although this technique is not in violation of reference (a), it is both cumbersome and endangers the health of the workmen breathing the hypochlorite dust. The Environmental Health Officer has indicated that the men doing this operation have complained of chest pains. Consideration should be given to improving the method of chlorination at this lake.

10. AIR POLLUTION

The power plant at the Subase has five boilers in operation, ranging in size from 64 MBTU/hr to 112 MBTU/hr. All of the boilers burn a light grade of low sulfur oil. The boiler designated as S-1 was constructed in 1973. Boiler Nos. 1 and 2 were built in 1960 and Boiler No. 3 in 1975. Boiler No. 4 will be demolished upon the completion of repairs to the other boilers. All boilers except #4 have smoke detecting equipment to provide environmental information as directed in Executive Order 11514, Section 2(a).

The Environmental Pollution Control Project A032D has extended Boilers #3 and 1-S substacks to eliminate localized fallout of particulate emissions during soot blowing operations; additional installation of induced draft fans shall complete this project and bring the boilers into air compliance. This project is scheduled for completion October 1976. Local and Federal Environmental Agencies have been informed of this projects' status.

The incinerator operation has been discontinued due to Connecticut Air Pollution Control Regulation Sec. 19-508-18(c)(3)(i). Special Project C5-72 will provide the Subase with a paper shredder to replace the Incinerator.

The Firefighting School has discontinued operation of its "fire bird" due to 40 CFR 76.9. However, this regulation has been revoked. Connecticut Air Pollution Control Regulations, Sec. 19-508-17(B)(1), Appendix L does allow fire fighting training. Therefore, training may be resumed on the "Firebird" as long as the provisions of the regulation are met. Code 114 is available to act as a liaison between the Subase and the State of Connecticut. Project A032E, Firefighting Smoke Control, was developed to allow the firefighting school to comply with 40 CFR 76.9, but is no longer required and is, therefore, cancelled.

The Naval Air Pollution Source Inventory System has been established at the activity to list all air pollution sources which have the capability of emitting any given pollutant in excess of 25 tons per year. The data gathered is compiled and submitted to the EPA in order to satisfy the legal requirements of the National Emission Data System (NEDS). The results from the NAPSIS survey may bring to light additional air violations. If violations are discovered, projects shall be initiated to correct the activity's deficiencies.

11. CONCLUSIONS AND RECOMMENDATIONS

1. Water Supply Systems:

A. The Subase does not have proper chlorine residual levels in its potable water system. It is recommended that the activity install at least one automatic chlorinator at the point of entry at the 12" main onto the Base. An additional chlorinator could be installed on the 10" main entering the Base if warranted at a later date.

B. The ship-to-shore connections at the pier areas are performed by shipyard personnel. It is imperative that the connections be supervised by Activity personnel to make sure that cross connections do not occur, eliminating the potential problem of contaminating the entire potable water system.

2. Fire Fighting Systems:

A. It has been determined by the A/E study mentioned in Section 4.1 and by the Fire Protection Branch of NORTHNAVFACENGCOM that the present fire fighting systems at the Subase are inadequate.

B. The recommendations in these reports should be reviewed and appropriate projects incorporated into the Milcon Program.

3. Storm Water Systems:

A. The Activity has taken steps to assure that all discharges to the storm system are storm runoff only. However, upon inspection, it was found that the swimming pool filter backwash is not connected to the sanitary system. Action has been initiated to provide the proper connection to eliminate this deficiency - See Appendix (K).

B. A cross connection in the storm system is evident near Building #3. The source should be located through dye testing and a proper connection to the sanitary system be initiated.

C. The photo lab sink connections should be investigated to assure that the photo chemicals in the print wash are not discharged to the storm system.

D. A sluice gate should be installed on the south end of North Lake to prevent swamp runoff from entering the lake during heavy rainfall. This lake is used for recreational purposes and protection from contamination should be provided.

4. Sewage Systems:

A. The sewage collection system is of adequate capacity to handle existing flows. The system does contain illegal bypass lines but these are scheduled to be eliminated by Milcon Project P-196 (FY-79), Sanitary Sewer System Improvements. This project also provides sewage collection facilities for ship-generated wastes at Connecticut State Pier #1.

B. Inflow/infiltration is excessive in certain parts of the sanitary sewer system. Since sewage flows will be metered by the Town of Groton, reduction of inflow/infiltration will reduce the monthly service charge to the Subase. Requests for an inflow/infiltration study should be forwarded to CINCLANTFLT for funding.

C. Adequacy of the sewage collection system to handle future expansion cannot be determined at this time, as the Subase Master Plan is undergoing extensive revision.

D. Operation of the four sewage treatment plants will be discontinued by September 1976. The necessary alterations to the Subase system will be provided by Milcon Project P-093, Connection to Municipal Sewer System.

5. Solid Waste:

A. The entire solid waste disposal system is being studied by Northern Division's Maintenance Division, under ESR No. 00129-2373. Results of this study should be available by 1 March 1976.

B. The Subase intends to comply with revised USDA requirements for handling foreign-generated garbage by "cooking" the waste in a converted Dempster Dumpster. Disposal can then be accomplished through conventional means.

C. Phase A, the data gathering step, of the R^4 Program has been completed by the Subase. Northern Division is currently evaluating the data to determine if Phase B, detailed evaluation of the resource recovery potential, is warranted.

6. Industrial Waste:

A. An industrial waste holding area does not conform to the naval criteria to collect and dispose of hazardous wastes regularly. The Activity has initiated corrective actions to dispose of the present holding area. Appendix (C) is enclosed to assist activity personnel in disposing of hazardous wastes. The Activity should pursue this cleanup operation and initiate a continuing program of waste disposal.

7. Oil:

A. The Subase oil spill contingency planning is in compliance with all applicable regulations.

B. There is a need to provide storage and deployment facilities for the oil spill cleanup equipment. Project W040J, submitted for activity review, satisfies these requirements.

C. The Subase expects to have a completed SPCC Plan on file by February 1976. This survey identified several deficiencies in the area of spill prevention and control. Projects W040G and W040H have been submitted for funding. Project W040I, representing the remaining identified deficiencies, is submitted with this report for activity review and comment.

D. In order to efficiently treat and recycle the oily wastes produced, a new treatment facility is proposed. A concept description is submitted for approval (Project W040K).

E. A project is being developed to correct deficiencies in the fuel and diesel oil storage and distribution system. Documentation will be forwarded to Subase for review and comment.

8. Swimming Pools:

A. Although powdered chlorination by boat is not considered an incorrect method of chlorinating lakes, consideration should be given to the health of the individuals administering the Hypochlorite. Masks should be provided to help prevent the inhalation of the hypochlorite dust. It is suggested that the chlorination techniques be studied and a more effective process be installed at the lake.

B. The indoor swimming pool's filter backwash is presently connected to the storm sewer system. In accordance with Public Law 92500, Section 301(a) "the discharge of any pollutant by any person shall be unlawful". Project W040F (Appendix K) has been prepared to connect this backwash water to the sanitary sewer.

9. Air Pollution:

A. The NAPSIS Survey now being accomplished by the Navy shall list all air pollutants. The results from these surveys may bring to light additional air violations. If violations are discovered, projects shall be initiated to correct the activity deficiencies.

APPENDICES

SHORE INSTALLATION SOLID WASTE QUESTIONNAIRE FORMAT

A. GENERAL AND ADMINISTRATIVE INFORMATION

1. Primary Command NAVSUBASE NLON Address Groton, CT 06340

2. Tenant Commands NAVSUBSUPPFACNLON NAVSUBSCOL NAVSUBMEDCEN

3. Command having responsibility for solid waste removal for customer activities NAVSUBASENLON

4. Base population 12,000 Total

Resident population 9,000 *(include civil service, contractor, military dependents, or others who live on ba*

Nonresident population 3,000 *(include civil service, contractor, and military personnel who regularly work on l*

5. How many family housing units are provided now? 2,200

- Planned expansion in FY 1976? ( ) Yes (X) No. If "yes", number of additional units _____.

B. SOLID WASTE COLLECTED BY PRIVATE OR MUNICIPAL CONTRACT *(If solid waste is not contracted out, skip item B.)*

1. Contractor: ( ) city (X) private

2. Percentages of solid waste collected: % 72% residential; % 28% industrial; % _____ other _____

3. Number of collections per week? 1

4. *Estimated annual tonnage collected under contract: 4,472 tons.

5. Type of collection service: ( ) alley ( ) backyard pickup (X) front curb setup ( ) other _____

6. Total annual cost borne by base for solid waste collection and disposal: $ 155,092.

*Average cost per ton: $ 34.68.

C. SOLID WASTE COLLECTED BY STATION FORCES

1. Type of labor: (X) civilian ( ) military

2. Percentages of solid waste collected: % 21 residential; % 79 industrial; % _____ other _____

3. Number of collections per week? as required

4. *Estimated annual tonnage collected under contract: 5,040 tons.

5. Type of collection service: ( ) alley ( ) backyard pickup ( ) front curb setup (X) other Dumpster

6. Total annual cost borne by base for solid waste collection and disposal: $ 55,752.

*Average cost per ton: $ 11.06.

7. If cost data is not applicable, indicate productivity by estimating annual average labor expenditure in man-hours by ton. _____

D. ENERGY AND MATERIALS RECOVERED FROM SOLID WASTE

1. Types of material currently being recovered from station solid waste: *(do not include industrial type scrap normally disposed of through the property disposal office).*

	Amount in tons/year	Price obtained/ton		Amount in tons/year	Price obtained/ton
Newsprint	200 tons	$4/ton	Glass containers	50 tons	$25/ton
Office paper			Aluminum cans	½ ton	$300/ton
Cardboard			Steel cans		
			Other materials *(list)*		

2. Describe the station plan of action to implement DOD Directive 6050.3 on resource recovery and recycling. (See attac sheet)

3. Search out and briefly describe recycling/energy recovery plans being considered or practiced by non-Navy agencies or private organizations within your local area.

APPENDIX B

SUBBASE [illegible]
(ATTACH.)

2. SUBASE INSTRUCTION 6240.1A prescribes method whereby recyclable materials are to be handled and sold, in accordance with DOD Directive 6050.3 of 19 Nov 1974. Funds from these materials are placed in a fund which is reserved for environmental enhancement programs as prescribed.

3. Local glass, aluminum, and bimetal recycling centers are abundant in the area. The town and many civic and religious organizations sponsor the centers. In addition, a commercial profit-making venture is beginning operation in Branford, CT to recycle glass and bimetalic cans.

4. All of the above programs are voluntary in nature and with the exception of the Branford operation; pure donations are requested. The Branford operation pays for the recyclable material.

ENVIRONMENTAL POLLUTION CONTROL

PROPOSED PROJECT REPORT

AGENCY: DEPARTMENT OF THE NAVY
NORTHERN DIV, NAVFAC

MEDIA:

UIC: N00129
PROJECT NO. W040J
DATA PREPARED: ~~01MAY77~~
DATE REVISED: 22 JAN 7
GSA INVENTORY CONTROL NO: 22252

1. FACILITY:

NAME: SUBMARINE BASE

ADDRESS: GROTON, CONNECTICUT

AGENCY CONTACT: F. J. DANOS, HD ENV ENG BR (215) 755-497

2. SPECIFIC TYPE OF POLLUTION:

OILY & DETERGENT WASH WATER

3. AMOUNT OF POLLUTION:

VARIES

4. POLLUTION SOURCE, AND DISCHARGE, EMISSION OR DEPOSIT POINT:

OIL SPILL CLEANUP EQUIPMENT STORED AND CLEANED ON THE WATERFRONT

5. EXISTING TREATMENT AND OTHER CONTROL MEASURES:

NONE

6. EFFECTIVENESS OF EXISTING TREATMENT AND CONTROL:

WASHWATER & OIL DRIPPINGS ENTER SUBBASE STORM ~~WATER~~ DRAINS AND FLOW INTO THAMES RIVER

7. REMEDIAL MEASURES PROPOSED AND ESTIMATED EFFECT IN CORRECTING PROBLEM:

CONSTRUCT ~~AN~~ AN EXTERIOR FENCED STORAGE AREA AND WASH RACK WITH OIL/WATER SEPARATOR AND DRAINS TO STORM & SANITARY SEWERS

APPENDIX D

ENVIRONMENTAL POLLUTION CONTROL

PROPOSED PROJECT REPORT

1. FACILITY ( ) MEDIA: WATER

(001) DIC: N00127

NAME: SUBMARINE BASE, (002) PROJECT NO W04CJ

ADDRESS: GROTON, CONNECTICUT

(005) VARIOUS LOCATIONS: (NO) XXX _____

(006) PROJECT NAME: SPILL EQUIPMENT SUPPORT FACILITY
(LIMIT OF 50 POSITIONS)

(007) REMARK:
(LIMIT OF 47 POSITIONS)

(008) REVISION NOTES: NEW PROJECT
(LIMIT OF 47 POSITIONS)

(009) STATUS: PP

(010) CONSTRUCTION COMPLETE DATE:

(011) FUNDING COMMAND: NAVFACENGCOM

(012) PURPOSE: 05

20. COST OF POLLUTION CONTROL MEASURES IN THOUSANDS OF DOLLARS:
(FUNDED COSTS APPEAR IN PARENTHESES)

(201) APPN	(202) FY	(203) DESIGN	(204) CONSTR	(205) FUNDED	(206) INTERNAL	(207) PROJECT	(208) NUMBERS
MCON	79	5	~~85~~ 85	ND			

TOTAL COST: ~~85~~ 90

(013) PRIORITY:

(300) 30. PRIORITY JUSTIFICATION:

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PROJECT NO: C0540 J

8. APPLICABLE STANDARDS:
FWPCA (1972)
EO 11752

9. PROJECT SCHEDULE:	AGENCY SCHEDULE (MO/YEAR)	REGULATION SCHEDULE (MO/YEAR)
DESIGN (COMPLETION)	8/78	
CONSTRUCTION (START)	10/78	
CONSTRUCTION (COMPLETION)	12/78	
OPERATION (START)	12/78	
FINAL COMPLIANCE	12/79	

10. OTHER RELEVANT INFORMATION:

FEDERAL WATER POLLUTION CONTROL

PROPOSED PROJECT REPORT

AGENCY: DEPARTMENT OF THE NAVY

BUREAU: NORTHNAVFACENGCOM

: WATER

UIC: N00129
PROJECT NO. W040G
DATA PREPARED: 2 Oct 75
DATE REVISED:
GSA INVENTORY CONTROL NO: 22252

1. FACILITY:

NAME: Submarine Base

ADDRESS: Groton, Connecticut

AGENCY CONTACT: F. J. Danos HD., Environmental Br (215)755-4972

2. SPECIFIC TYPE OF POLLUTION: Diesel Oil Spills

3. AMOUNT OF POLLUTION:

Spills up to 3,000 gallons possible

4. POLLUTION SOURCE, AND DISCHARGE, EMISSION OR DEPOSIT POINT:

MUSE Diesel Generators at Bldg. #85 & #173 utilize 3,000 gallon diesel storage tank

5. EXISTING TREATMENT AND OTHER CONTROL MEASURES:

None

6. EFFECTIVENESS OF EXISTING TREATMENT AND CONTROL:

Lack of secondary containment will allow spills to flow into Thames River 100 feet away.

7. FUTURE MEASURES PROPOSED AND ESTIMATED EFFECT ON CORRECTING PROBLEM:

Provide containment berms to control all possible spills.

APPENDIX E

PROJECT NO. [illegible]

8. APPLICABLE STANDARDS: Federal Register, Vol 38, No 237, Part II, 11 Dec 1973, Section 112.7 Requires secondary containment for tanks and loading racks.

9. PROJECT SCHEDULE:	AGENCY SCHEDULE (MO/YEAR)	REGULATION SCHEDULE (MO/YEAR)
DESIGN (COMPLETION)	6/76	
CONSTRUCTION (START)	7/76	
CONSTRUCTION (COMPLETION)	10/76	
OPERATION (START)	10/76	
FINAL COMPLIANCE	10/76	1/75

10. OTHER RELEVANT INFORMATION:

INFORMATION

ENVIRONMENTAL POLLUTION CONTROL

PROPOSED PROJECT REPORT

1. FACILITY

NAME: Submarine Base

ADDRESS: Groton, Connecticut

( ) MEDIA: Water

(001) UIC: N00129

(002) PROJECT NO: W04G

(005) VARIOUS LOCATIONS: (XX) YES 2

(006) PROJECT NAME: Berm Diesel Generators and Fuel Tanks
(LIMIT OF 50 POSITIONS)

(007) REMARK: Bldg. 85, 173
(LIMIT OF 47 POSITIONS)

(008) REVISION NOTES: NEW PROJECT
(LIMIT OF 47 POSITIONS)

(009) STATUS: PP

(010) CONSTRUCTION COMPLETE DATE: OCT 76

(011) FUNDING COMMAND: NAVFACENGCOM

(012) PURPOSE: 05

20. COST OF POLLUTION CONTROL MEASURES IN THOUSANDS OF DOLLARS:
(FUNDED COSTS APPEAR IN PARENTHESES)

(201) APPN	(202) FY	(203) DESIGN	(204) CONSTR	(205) FUNDED	(206) (207) (208) INTERNAL PROJECT NUMBERS
O&MN	~~76~~ 77	1	10	NO	

TOTAL COST: 11

(013) PRIORITY:

(300) 20. PRIORITY JUSTIFICATION:

0010 FACILITY CATEGORY CODE: 411-30

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WATER POLLUTION CONTROL

PROPOSED PROJECT REPORT

AGENCY: DEPARTMENT OF THE NAVY

MEDIA: NORTHNAVFACENGCOM
: WATER

UIC: N00129
PROJECT NO.W04-0 4
DATA PREPARED: 2 Oct 75
DATE REVISED:
GSA INVENTORY CONTROL NO: 22252

1. FACILITY:

NAME: Submarine Base
ADDRESS: Groton, Connecticut
AGENCY CONTACT: F.J. Danos HD., Environmental Br (215)755-4972

2. SPECIFIC TYPE OF POLLUTION: Oil Spills

3. AMOUNT OF POLLUTION:

Spills up to 6,000 gallons possible

4. POLLUTION SOURCE, AND DISCHARGE, EMISSION OR DEPOSIT POINT:

Tank trucks transfer lubricating oil to underground tanks K & L, Bldg. 344, receive oil from Bldg. 310 at tank farm, and buses receive diesel fuel from above ground tank at Bldg. 346

5. EXISTING TREATMENT AND OTHER CONTROL MEASURES:

None

6. EFFECTIVENESS OF EXISTING TREATMENT AND CONTROL:

Lack of secondary containment will allow spills to enter storm sewer system and flow to Thames River.

7. REMEDIAL MEASURES PROPOSED AND ESTIMATED EFFECT IN CORRECTING PROBLEM:

Provide containment dikes and curbing to contain all possible spills.

APPENDIX F

PROJECT NO [illegible]

8. APPLICABLE STATUTES: Federal Register, Vol 38, No 237, Part II, 11 Dec 1973, Section 112.7 requires secondary containment for tanks and loading racks.

9. PROJECT SCHEDULE:	AGENCY SCHEDULE (MO/YEAR)	REGULATION SCHEDULE (MO/YEAR)
DESIGN (COMPLETION)	6/76	
CONSTRUCTION (START)	7/76	
CONSTRUCTION (COMPLETION)	10/76	
OPERATION (START)	10/76	
FINAL COMPLIANCE	10/76	1/75

10. OTHER RELEVANT INFORMATION:

INFORMATION

ENVIRONMENTAL POLLUTION CONTROL

PROPOSED PROJECT REPORT

1. FACILITY ( ) MEDIA: Water

NAME: Submarine Base (001) UIC: N00129

(002) PROJECT NO W046

ADDRESS: Groton, Connecticut

(005) VARIOUS LOCATIONS: (XX) YES 3

(006) PROJECT NAME: Oil transfer, loading rack containment
(LIMIT OF 50 POSITIONS)

(007) REMARK:
(LIMIT OF 47 POSITIONS)

(008) REVISION NOTES: NEW PROJECT
(LIMIT OF 47 POSITIONS)

(009) STATUS: PP

(010) CONSTRUCTION COMPLETE DATE: OCT 76

(011) FUNDING COMMAND: NAVFACENGCOM

(012) PURPOSE: 05

20. COST OF POLLUTION CONTROL MEASURES IN THOUSANDS OF DOLLARS:
(FUNDED COSTS APPEAR IN PARENTHESES)

(201) APPN	(202) FY	(203) DESIGN	(204) CONSTR	(205) FUNDED	(206) (207) (208) INTERIM PROJECT NUMBERS
O&MN	77	3	30	No	

TOTAL COST: 33

(013) PRIORITY:

(300) 30. PRIORITY JUSTIFICATION:

0010 FACILITY CATEGORY CODE: 126-30

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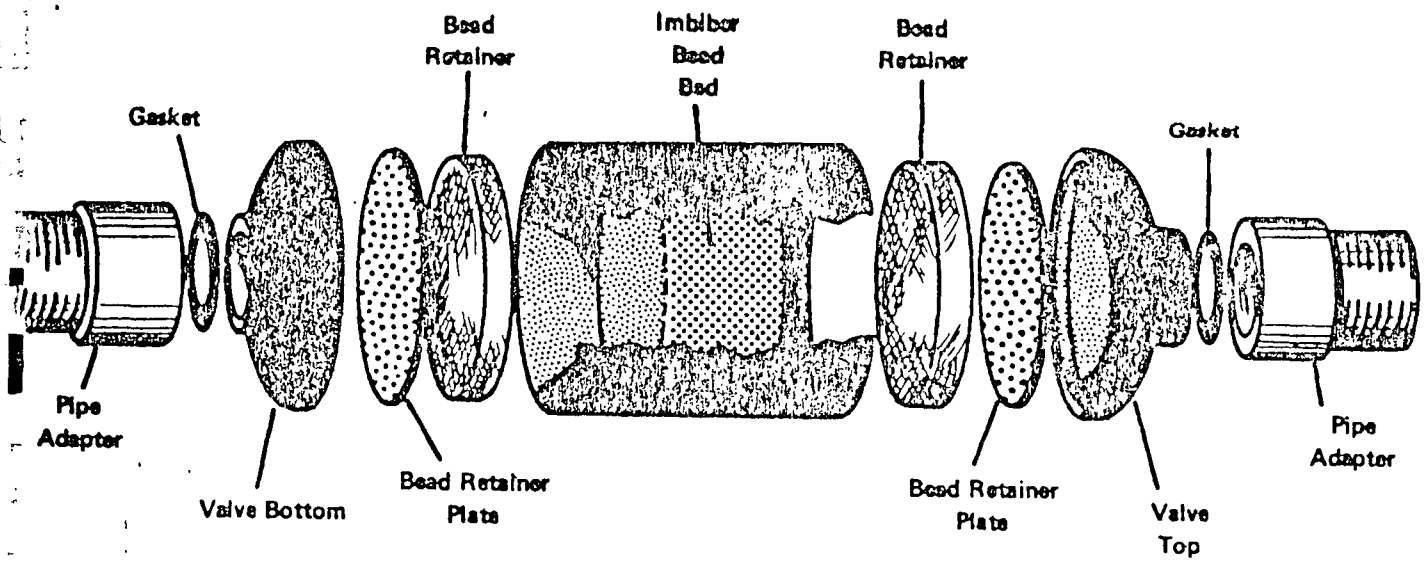
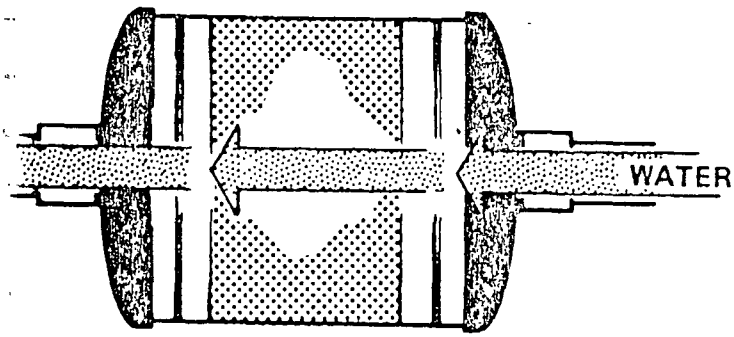
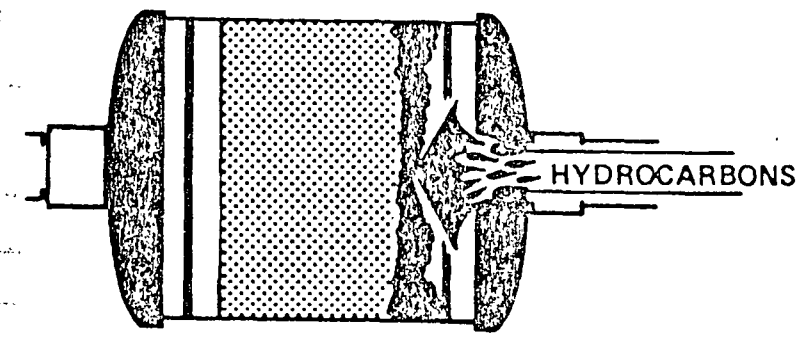






WHAT IS THE GEDCOR IMBIBER VALVE?

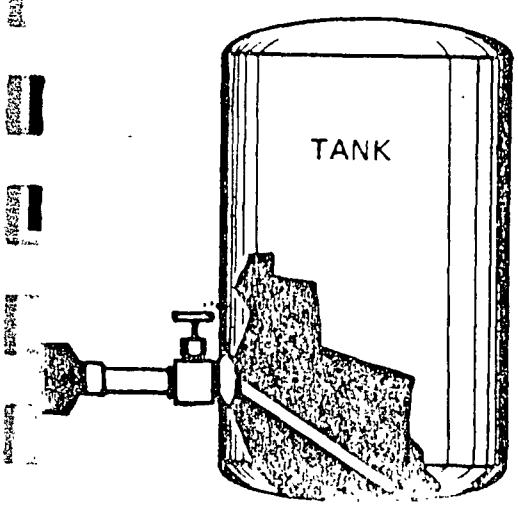
IT IS AN AUTOMATIC VALVE WITHOUT MOVING PARTS. IT ALLOWS PASSAGE OF WATER, BUT PREVENTS PASSAGE OF HYDROCARBONS.

HOW DOES IT WORK?

WHEN THE BED OF DOW IMBIBER BEAD IS CONTACTED BY A HYDROCARBON IT FORMS A SEALING SUBSTANCE THAT CLOSES OFF THE VALVE.

WHERE IS IT USED?

IN DRAIN LINES ON STORAGE TANKS OR IN OTHER APPLICATIONS WHERE IT IS DESIRABLE TO ALLOW WATER FLOW WHILE PREVENTING HYDROCARBON FLOW.



☐ Please send additional information

☐ Please have a representative make a personal contact

☐ I would like a demonstration

Company _____

Individual's Name _____

Address _____

APPENDIX G

ENVIRONMENTAL POLLUTION CONTROL

PROPOSED PROJECT REPORT

AGENCY: DEPARTMENT OF THE NAVY
NORTHERN DIV, NAVFAC
MEDIA: WATER

UIC: N00129
PROJECT NO. W0460 I
DATA PREPARED: ~~01 MAY 75~~ 19 JAN 75
DATE REVISED:
GSA INVENTORY CONTROL NO:

1. FACILITY:

NAME: SUBMARINE BASE
ADDRESS: GROTON, CONNECTICUT
AGENCY CONTACT: F. J. DANOS, HD ENV ENG BR (215) 755-4972

2. SPECIFIC TYPE OF POLLUTION:

TRANSFORMER COOLANT

3. AMOUNT OF POLLUTION:

POSSIBLE SPILLS OF UP TO ~~5950~~ 3400 GALLONS OF ASKAREL (PCB) AND 10,000 GALLONS OF MINERAL OIL

4. POLLUTION SOURCE, AND DISCHARGE, EMISSION OR DEPOSIT POINT:

MAIN SUBSTATIONS ON WAHOO AVE (8500 GAL OIL) AND BLDG 29 (2700 PCB); TRANSFORMERS AT BLDG 29 (1500 GALS. OIL) AND BLDG 173 (700 GAL PCB)

5. EXISTING TREATMENT AND OTHER CONTROL MEASURES:

~~TRANSFORMERS ARE LOCATED ON GRAVEL BEDS WITH NO SECONDARY CONTAINMENT~~
NONE

6. EFFECTIVENESS OF EXISTING TREATMENT AND CONTROL:

LACK OF SECONDARY CONTAINMENT WILL ALLOW SPILLS TO FLOW INTO ADJACENT STREAM AND THE THAMES RIVER.

7. REMEDIAL MEASURES PROPOSED AND ESTIMATED EFFECT IN CORRECTING PROBLEM:

SEAL GRAVEL BEDS AND PROVIDE CURBING TO CONTROL ALL POSSIBLE SPILLS

APPENDIX H

PROJECT NO: (1)004-I

8. APPLICABLE STANDARDS: FEDERAL REGISTER, VOL. 38, NO. 237, PART II, 11 DEC 1973, SECTION 117.7 REQUIRES SECONDARY CONTAINMENT. FWPCA 1972 (PL-92-500) E.O. 11752

9. PROJECT SCHEDULE:	AGENCY SCHEDULE (MO/YEAR)	REGULATION SCHEDULE (MO/YEAR)
DESIGN (COMPLETION)	AUG 77	
CONSTRUCTION (START)	OCT 77	
CONSTRUCTION (COMPLETION)	DEC 77	
OPERATION (START)	DEC 77	
FINAL COMPLIANCE	DEC 77	OCT 72

10. OTHER RELEVANT INFORMATION:

INFORMATION

ENVIRONMENTAL POLLUTION CONTROL

PROPOSED PROJECT REPORT

1. FACILITY

( ) MEDIA: WATER

NAME: SUBMARINE BASE

(001) UIC: N60129

(002) PROJECT NO: 1161

ADDRESS: GROTON, CONNECTICUT

(005) VARIOUS LOCATIONS: (~~XX~~) YES 4

(006) PROJECT NAME: SPILL CONTAINMENT - TRANSFORMERS
(LIMIT OF 50 POSITIONS)

(007) REMARK:
(LIMIT OF 47 POSITIONS)

(008) REVISION NOTES: NEW PROJECT
(LIMIT OF 47 POSITIONS)

(009) STATUS: PP

(010) CONSTRUCTION COMPLETE DATE:

(011) FUNDING COMMAND: NAVFACENGCOM

(012) PURPOSE: 05

20. COST OF POLLUTION CONTROL MEASURES IN THOUSANDS OF DOLLARS:
(FUNDED COSTS APPEAR IN PARENTHESES)

(201) APPN	(202) FY	(203) DESIGN	(204) CONSTR	(205) FUNDED	(206)	(207)	(208) INTERNAL PROJECT NUMBERS
O&MN	79	1.5	16	NO			

TOTAL COST: 17.5

(013) PRIORITY:

(300) 30. PRIORITY JUSTIFICATION:

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AR000143-4972

114/396/PES

17 APR 1975

From: Commanding Officer, Northern Division, Naval Facilities Engineering Command
To: Commanding Officer, Naval Submarine Base, New London, CT

Subj: Oily Waste Handling and Disposal; proposed facility for

Ref: (a) Exxon Study of Oily Waste Handling and Disposal, U. S. Naval Submarine Base, New London, CT of Aug 1974

Encl: (1) Table 1, Cost Estimate for Proposed Oily Waste Handling and Disposal Facility

1. Reference (a), prepared by Exxon Research and Engineering Company, recommends three possible solutions to the oily waste handling and disposal problems at the New London Submarine Base. The subject facility was prepared by Northern Division as a fourth alternative to the proposals of reference (a). Comments on this alternative are requested.

2. It is proposed that a primary treatment facility be built which will produce an acceptable wastewater effluent while subscribing to the national policy of energy conservation. The facility includes two API oil/water separators placed in parallel, with hand-operated oil draw-off to a new 4000 gallon waste oil storage tank, and sludge removal by hand cleaning with subsequent contractor disposal. The wastewater is discharged to the sanitary sewer, instead of to the storm sewer as proposed by reference (a). The API separator should easily meet the municipal pretreatment requirement of 100 ppm total oil. Discharge to the sanitary sewer eliminates the requirement for an NPDES permit, and its related cost of administration, sampling and testing the effluent.

3. Enclosure (1) is an estimate of the cost to the Navy for the proposed treatment of oily wastewater, recovery of waste oil, and discharge of wastewater to the sanitary sewer. Not included in the cost estimate is the cost of tank trucks for hauling the oily waste from pierside since these trucks are already in use at the Activity. Annual cost of treating wastewater by municipality is based on 630,000 gallons of wastewater from 780,000 gal/yr of oily wastewater at a rate of $1/1000 gallons. The annual cost to the Submarine Base, New London is $16,000.

Initial hereon indicates that the person initialing has read and approved the correspondence and has no recommendation to make as to change herein.

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PREPARED BY

4ND-NORTHERNDIV-5211/2 (2-74)

APPENDIX I

114/396/PES

4. Taking into consideration the cost savings realized from the reclamation of 150,000 gallons of burnable waste oil per year, the Navy realizes a net savings of:

150,000 gal. x $0.27 gal - 16,000 = $24,000/yr.

This savings of $24,000/yr compares favorably with the least expensive Exxon cost figure of $73,000/yr, even though this figure includes the purchase of several new tank wagons. (see Tables 6 and 7 of ref (a) for details).

5. It is requested that the subject proposal be considered in conjunction with reference (a) prior to submittal of project documentation. Mr. Paul Saulnier, Code 1141/PES, Autovon 443-4972 is available for discussion.

M. BORETSKY
By direction

Copy to:
Code 11 R. F.
09B R. F.
1141/PES
PES:jlj:4/17/75
NAVFAC (Code 1043)
NCBC (CEC) MR. A. BIALECKI

Initial hereon indicates that the person initialing has read and approved the correspondence and has no recommendations to make as to change herein.

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PREPARED BY

PROPOSED OILY WASTE HANDLING AND DISPOSAL FACILITY

COST ESTIMATE

Direct Costs

Treatment Facilities

API Separators	50,000	
Waste Oil Tank	5,000	
Discharge Line	5,000	
	60,000	60,000

Ancillary Direct Costs

Installation	7,000	
Piping (Installed)	4,000	
Yard Improvements	2,000	
	13,000	13,000
TOTAL DIRECT COST ---		73,000

Indirect Costs

Engineering Supervision	6,000	
Construction Expense	10,000	
Contractors Fee	2,000	
Contingency	10,000	
	28,000	
TOTAL INDIRECT COST ---		28,000
TOTAL CAPITAL INVESTMENT --		101,000

Annual Cost

Direct Operating Cost	12,000
Plant Overhead	1,000
General Admin. Expenses	400
Municipal Treatment	600
Sludge Hauling	2,000
	16,000

Enclosure (1)

ENVIRONMENTAL POLLUTION CONTROL

PROPOSED PROJECT REPORT

AGENCY: DEPARTMENT OF THE NAVY
NORTHERN DIV, NAVFAC
MEDIA:

UIC: N00129
PROJECT NO. W04-0?K
DATA PREPARED: ~~4 ...~~ 16 JAN 76
DATE REVISED:
GSA INVENTORY CONTROL NO:

1. FACILITY:

NAME: SUBMARINE BASE
ADDRESS: GROTON, CONNECTICUT
AGENCY CONTACT: F. J. DANOS, HD ENV ENG BR (215) 755-4972

2. SPECIFIC TYPE OF POLLUTION:

OILY WASTEWATER

3. AMOUNT OF POLLUTION:

780,000 gals/YR

4. POLLUTION SOURCE, AND DISCHARGE, EMISSION OR DEPOSIT POINT:

SHORESIDE OPERATIONS AND SHIP-GENERATED OILY WASTES

5. EXISTING TREATMENT AND OTHER CONTROL MEASURES:

COLLECTED AND STORED IN TANK 5 AND TANK D

6. EFFECTIVENESS OF EXISTING TREATMENT AND CONTROL:

INEFFECTIVE AS PRIMARY SEPARATOR AND CAUSES WASTEWATER TO BECOME ANAEROBIC

7. REMEDIAL MEASURES PROPOSED AND ESTIMATED EFFECT IN CORRECTING PROBLEM:

PROVIDE PRIMARY SEPARATION FACILITIES AND WASTE OIL RECOVERY SYSTEM

APPENDIX J

PROJECT NO: C[illegible]

8. APPLICABLE STANDARDS:

F.W.P.C.A

E.O. 11752

9. PROJECT SCHEDULE:	AGENCY SCHEDULE (MO/YEAR)	REGULATION SCHEDULE (MO/YEAR)
DESIGN (COMPLETION)	AUG 78	
CONSTRUCTION (START)	OCT 78	
CONSTRUCTION (COMPLETION)	JAN 79	
OPERATION (START)	JAN 79	
FINAL COMPLIANCE	JAN 79	JAN 75

10. OTHER RELEVANT INFORMATION:

ENVIRONMENTAL POLLUTION CONTROL

PROPOSED PROJECT REPORT

1. FACILITY ( ) MEDIA: WATER

(001) UIC: N60129

NAME: SUBMARINE BASE (002) PROJECT NO: 0404

ADDRESS: GROTON, CONNECTICUT

(005) VARIOUS LOCATIONS: (NO) ~~XXX~~ ____

(006) PROJECT NAME: OILY WASTE TREATMENT FACILITY
(LIMIT OF 50 POSITIONS)

(007) REMARK:
(LIMIT OF 47 POSITIONS)

(008) REVISION NOTES: NEW PROJECT
(LIMIT OF 47 POSITIONS)

(009) STATUS: PP

(010) CONSTRUCTION COMPLETE DATE:

(011) FUNDING COMMAND: NAVFACENGCOM

(012) PURPOSE: 05

20. COST OF POLLUTION CONTROL MEASURES IN THOUSANDS OF DOLLARS:
(FUNDED COSTS APPEAR IN PARENTHESES)

(201) APPN	(202) FY	(203) DESIGN	(204) CONSTR	(205) FUNDED	(206)	(207)	(208)
					INTERNAL PROJECT NUMBERS		
MCON	79	7.5	120	NO			

TOTAL COST: 127.5

(013) PRIORITY:

(300) 30. PRIORITY JUSTIFICATION:

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PROPOSED PROJECT REPORT

AGENCY: DEPARTMENT OF THE NAVY

MEDIA: NORTHNAVFACENGCOM
: WATER

UIC: N00129
PROJECT NO. W040F
DATA PREPARED: 2 Oct 75
DATE REVISED:
GSA INVENTORY CONTROL NO: 22252

1. FACILITY:

NAME: Submarine Base

ADDRESS: Groton, Connecticut

AGENCY CONTACT: F.J. Danos HD., Environmental Br (215)755-4972

2. SPECIFIC TYPE OF POLLUTION:

Swimming pool filter backwash

3. AMOUNT OF POLLUTION:

1,000 gallons per backwash, two times per week

4. POLLUTION SOURCE, AND DISCHARGE, EMISSION OR EFFLUENT POINT:

Filter backwash from swimming pool filtration system, Bldg. 120

5. EXISTING TREATMENT AND OTHER CONTROL MEASURES:

Backwash water directed to storm sewer

6. EFFECTIVENESS OF EXISTING TREATMENT AND CONTROL:

None

7. REMEDIAL MEASURES PROPOSED AND ESTIMATED EFFECT IN CORRECTING PROBLEM:

Connect backwash discharge line to sanitary sewer.

APPENDIX K

PROJECT NO W-

8. APPLICABLE STANDARDS: E.O. 11752, FWPCA, 1972 (PL 92-500)
Connecticut Department of Environmental Protection
Water Quality Standards, December 1973.

9. PROJECT SCHEDULE:	AGENCY SCHEDULE (MO/YEAR)	REGULATION SCHEDULE (MO/YEAR)
DESIGN (COMPLETION)	6/76	
CONSTRUCTION (START)	7/76	
CONSTRUCTION (COMPLETION)	10/76	
OPERATION (START)	10/76	
FINAL COMPLIANCE	10/76	12/72

10. OTHER RELEVANT INFORMATION:

INFORMATION

ENVIRONMENTAL POLLUTION CONTROL

PROPOSED PROJECT REPORT

1. FACILITY

NAME: Submarine Base

ADDRESS: Groton, Connecticut

( ) MEDIA: Water

(001) UIC: N00129

(002) PROJECT NO W040F

(005) VARIOUS LOCATIONS: (NO) XXX

(006) PROJECT NAME: Connect filter backwash to Sanitary Sewer
(LIMIT OF 50 POSITIONS)

(007) REMARK: Bldg. 120
(LIMIT OF 47 POSITIONS)

(008) REVISION NOTE: NEW PROJECT
(LIMIT OF 47 POSITIONS)

(009) STATUS: PP

(010) CONSTRUCTION COMPLETE DATE: OCT 76

(011) FUNDING COMMAND: NAVFACENGCOM

(012) PURPOSE: PJ

20. COST OF POLLUTION CONTROL MEASURES IN THOUSANDS OF DOLLARS:
(FUNDED COSTS APPEAR IN PARENTHESES)

(201) APPN	(202) FY	(203) DESIGN	(204) CONSTR	(205) FUNDED	(206) (207) (208) INTERNAL PROJECT NUMBERS
O&MN	~~76~~ 77	2	20	NO	

TOTAL COST: 22

(013) PRIORITY:

(300) 20. PRIORITY JUSTIFICATION:

0010 FACILITY CATEGORY CODE: 750-31

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DEPARTMENT OF THE NAVY
NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
PHILADELPHIA, PENNSYLVANIA 19112

TELEPHONE N .
Autovon 443-4972

114/113/PES

25 FEB 1976

From: Commanding Officer, Northern Division, Naval Facilities Engineering Command
To: Commanding Officer, Naval Submarine Base, Groton, CT

Subj: Environmental Engineering Survey (EES) of Naval Submarine Base, Groton, CT

Ref: (a) NAVFACINST 5450.19B of 15 Oct 1974

Encl: (1) Final Copy of EES for Naval Submarine Base, Groton, CT

1. In accordance with reference (a), a survey of the environmental engineering facilities at your activity has been completed. The final report of this survey, containing recommendations where applicabl , is herein forwarded as enclosure (1) for your review and information.

M. BORETSKY
By direction

Copy to:
NAVFACENGCOM (Code 104)
NESO PORT HUENEME CA

7. Industrial Waste

7.1 Industrial Waste Storage Area

The Subase stores industrial wastes in 55 gallon drums at the southwest corner of the swamp. Storage began in mid 1972 and since then all types of chemical wastes have accumulated. The present holding area has over 200 barrels of waste stored. (See Figure 7-1). The condition of the holding area is generally poor. Some barrels marked acid or caustic are rusted through and the contents gone. Other barrels contain small glass containers of acids and many of the drums are not capped. Since the holding area is located near the marsh area, the potential of polluting the marsh and eventually the Thames, is formidable. Access to the site is not restricted, adding to the safety and environmental hazards. The Activity is now developing a program to dispose of these hazardous wastes. Techniques presently being considered are: (1) collecting and disposing of the waste oils via regular disposal methods presently in operation at the base; (2) negotiating with companies capable of recovering/recycling wastes; (3) disposing of waste through land-filling operations acceptable to the Groton Landfill operation, and (4) developing a private contract to dispose of all waste which cannot be disposed of by any other means. This contract shall stipulate that all environmental considerations must be met.

Consideration should be given to include the Defense Property Disposal Service's 12 barrels of wastewater containing 0.00013 PPM of mercury in the ultimate solution.

Guidance for the disposal of hazardous wastes generated by fleet and shore activities is provided in Appendix C. The CHIL guideline is intended for use in disposal of excess stock or shelf items. However, modifications of these methods may be used for the purpose of disposing the used hazardous materials found at the Holding Area.

7.2 Photo Lab Waste

In August 1975, the Subase Photographic Lab initiated a silver recovery program. The hypo-solution, used as a fixer, is collected and returned to the manufacturer. The silver is recovered from the solution and the hypo is reconditioned. The developer is collected and put into 55 gallon drums to be sent to the industrial holding area.

The sink drain from the Black and White Picture wash is suspected of being connected to the storm sewer. This wash contains photo waste and should be discharged to the sanitary sewer system.

It is recommended that station drawings be reviewed and dye testing be performed to determine the point of discharge.

7.3 Damage Control Center

The Damage Control Center has a mock up boiler room known as the "firebird" used for fire fighting training. However, since stringent air pollution regulations, 40 CFR 76.9 have been issued the training has been discontinued. The Control Center now has class room training only.

OBA canisters, used for producing oxygen in breathing masks by the chemical reaction $2KO_2 + HOH \rightarrow 2KOH + 3/2O_2$, are disposed of at the Center. The potassium Hydroxide, in the OBA canister is dumped into a 100 gallon tank, forming a highly basic solution. The contents of the tank are gradually emptied into the sanitary sewer.

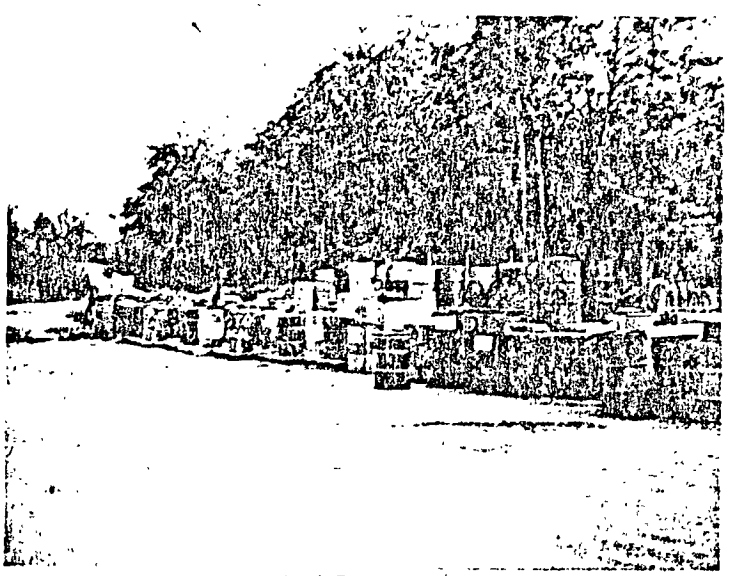

FIGURE (7-1)

8. OIL

References:

(a) COMTHREEINST 6240.2 of 12 Oct 1971, Water Pollution by Oil or other Hazardous Substances
(b) OPNAVINST 6240.3D of 24 Apr 1975; Environmental Protection Manual
(c) CINCLANTFLTINST 6240.3 of 11 Sep 1973; Environmental Pollution Due to Spills of Oil or Other Hazardous Substances; procedures concerning
(d) First Coast Guard District, Region I, Multi-Agency Oil and Hazardous Materials Pollution Contingency Plans (Coastal)
(e) EPA Region I, Oil and Hazardous Substances Pollution Contingency Plan for Inland Navigable Waters, Volume VII, Subregional Plan - Connecticut
(f) NAVFACNOTE 6240 of 17 Sep 1975; Oil Spill Equipment Procurement Program
(g) NAVFAC ILSP-001 of 14 Jan 1975; Integrated Logistics Support Plan for Harbor Oil Spill Removal/Recovery Systems
(h) NAVFACENGCOMHQ ltr 1043D/PLN of 11 Jun 1975; Shore Support Facilities for Oil Spill Cleanup Equipment; guidance on
(i) OPNAVNOTE 6240 of 13 Feb 1974; Oil Pollution Control Regulations for Non-transportation Related On-Shore and Off-shore Facilities
(j) Federal Register, Vol. 38, No. 237, Dec 11, 1973, pgs. 34164-34169, "Non-transportation Related On-Shore and Off-Shore Facilities
(k) NORTHNAVFACENGCOM ltr 114/542/PES of 24 Jun 1974
(l) Van Houtin Assoc. Study; Pollution Control for Diesel and Fuel Oil Systems, Naval Submarine Base, New London, CT of June 1974; Contract No. N62472-74-C-1054
(m) Exxon Study; Oily Waste Handling and Disposal at U. S. Naval Submarine Base, New London, CT of August 1974; Contract No. N00025-74-C-0001
(n) SUBASE ltr Ser 800/246 of 16 May 1975

8.1 Oil Spill Contingency Planning

8.1.1 Organizational Planning

The Subase has been designated as Navy Oil Spill Fast Response Center (FRC) by reference (a). It is the responsibility of the FRC to organize and train a Fast Response Team (FRT) and develop oil spill plans as for those Third Naval District activities located near tidal waters in their area of responsibility.

Reference (b) describes the Navy's committment towards oil pollution prevention and abatement, and implements the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 1510). It is Navy policy that Area Coordinators will cooperate with appropriate local, State and Federal Agencies in the implementation of the National Contingency Plan. Accordingly, Subase should be familiar with references (c), (d) and (e), applicable regional plans. The Subase should keep the Coast Guard appraised of the assistance that the Subase can provide towards spill clean-up or training, and if necessary, provide these agencies with a copy of the station contingency plan, Article 1301 of SOPA 3000.1

During informal discussions with LT Bair of the Coast Guard, it was learned that the Connecticut State Senate is considering a bill which, if passed, would require the deployment of oil boom around a vessel during fueling and/or defueling operations. The State Department of Environmental Protection reportedly opposes this bill because of the economic impact. The Subase should be prepared to present opposing arguments based on past performance in preventing spills and spill contingency planning.

8.1.2 Support Equipment

The oil spill containment and clean-up equipment is being centrally procured by NAVFACENGCOMHQ and distributed as requested by the receiving activity. It is to be used in support of the station spill contingency plans.

The equipment scheduled for delivery to the SUBASE is listed in reference (f). and summarized as follows:

a) 1500' of Class III Booms
b) one utility boat
c) One - oil/water separator subsystem
d) one boom cleaner
e) four mooring systems
f) one floating platform

The following equipment is on-hand and available for spill response:

a) 1500' of Class III Booms
b) 500' of Bennett Boom
c) one slurp skimmer
d) one medium skimmer (DIP 1002)
e) one large skimmer (DIP 3001)
f) two closed-bottom donuts

Port Services, NAVSUBSUPFAC, maintains the floating equipment for the Subase and is scheduled to receive additional spill support equipment. A detailed description of the above noted equipment is included in reference (g).

The cleanup equipment is stored in the general area of the waterfront, near Pier 1. Discussions with LTJG Bryce, Port Services, indicate that there is a need for a specific storage area near Pier 1, at least one boat davit, and a boom wash facility. These facilities are fundable under the guidelines provided by reference (h).

However, a specific location with permanently constructed facilities cannot be assigned at this time. Northern Division's Planning Division is revising the Subase Master Plan, which includes the replacement of Pier 1, and the removal of the marine railway. This area will then be assigned to the spill cleanup support facility. Project W040J has been prepared to reserve funds for these facilities, and is submitted for review as Appendix (D). The project includes a fenced area, 100 ft. x 100 ft., enclosing a concrete slab with securing posts for equipment tie down and an area for cleaning boom. Drainage from this washrack would be directed through a diversion chamber to either the storm sewer as an oil/water separator, then to the sanitary sewer. Also included are two boat davits fixed to the quay wall. Upon approval, Subase should prepare and submit supporting documents.

8.2 Spill Prevention Control and Countermeasures (SPCC) Plan

8.2.1 Compliance

Reference (i) implemented oil pollution control regulations within the Navy. These regulations, published by reference (j), were summarized and forwarded to Subase by reference (k) to be used as an aid in preparing the station SPCC Plan. This plan should compliment the station's oil spill contingency plan.

The Subase, at the time of this survey, does not have a completed SPCC Plan on file, in direct violation of reference (j) which required a completed Plan to be on file by 10 July 1974. Correction of deficiencies was to be accomplished by 10 Jan 1975. However, due to budgetary constraints, the Subase can only identify deficiencies, develop projects, and request funding through the Pollution Abatement Program. Discussions with LT Farmer, PWD, indicate that the SPCC Plan will be complete by February 1976.

8.2.2 Deficiencies

Several on-shore facilities were found to be deficient in the area of spill prevention and control:

a) The MUSE diesel generators located adjacent to Bldg. #85 and Bldg. #173 utilize 3000 gallons of diesel oil stored above ground. Both facilities are located within 100 feet of the Thames River and in the path of vehicular traffic, with no protection or secondary containment (Figure 8-1). Although these units are considered temporary, the possibility of a spill is great and therefore secondary containment is justified.

Project W040G, SPCC Secondary Containment, Appendix E, has been entered in the FY-77 Pollution Abatement Program. Should the MUSE units be removed, the project can be withdrawn from the program.

b) Tank trucks transfer lubricating oil to underground tanks K and L at Bldg. 344, and receive fuel oil from the tank farm loading rack at Bldg. 310. Buses receive diesel fuel from the above ground storage tank at Bldg. 346, as seen in Figure 8-2. None of these facilities have secondary containment. In order to comply with the requirements of reference (j), the construction of secondary containment has been scheduled for FY-77 by Project W040H, Oil Transfer, Loading Rack Containment (Appendix F).

Projects W040G and W040H should be described in the Subase SPCC Plan, currently under preparation. Copies of the project documents should be attached to the Plan for record purposes.

c) Transformers: one area of particular concern is exterior transformers, filled with polychlorinated-biphenyls (PCB) as a coolant. This material, used because of its fire-resistance properties, has been identified by the EPA as being one of the more toxic substances known to man. Proposed effluent limitations set the contamination level at 10 parts per trillion. It is highly toxic when inhaled or ingested and can be absorbed through the skin. Test samples, along with any materials contaminated with PCB, should be carefully packaged and sent to Monsanto in Sauget, Illinois, the only facility authorized to reclaim or dispose of all PCBs in the country. Based on the relative hazards and disposal problems noted above, it is recommended that NRS(T) review the base transformer installations and reevaluate the fire hazards to adjacent facilities caused by the presence of the transformer. If the need for protection from fire is no longer great, then consideration should be given to replacing the PCB coolant with a less hazardous mineral oil.

More detailed information on the use, inspection and maintenance of PCBs may be obtained by writing to:

Monsanto Chemical Company
800 North Lindbert Boulevard
St. Louis, MO 63166

Instructions on shipping contaminated materials must be obtained by calling the Monsanto Custom Order Processing Group (Mr. Cliff Field):

WATS: 800-325-3850

COMM: 314-694-3024

The Subase, under Contract No. N62472-73-C-0117, is installing two new power substations, one on Wahoo Avenue across from Bldg. 124, and the other on the waterfront adjacent to Bldg. 29. A new transformer is also being installed at Bldg. 173. A bank of transformers, Vault No. 3, is also located on the waterfront at Bldg. 29.

The substation on Wahoo Avenue is comprised of two large transformers containing 3935 gallons of mineral oil each, and three breakers, each containing 170 gallons of mineral oil. Drainage from this site flows in a westerly direction, through the swamp area where the industrial waste is stored, past North Lake and the Officers' Club, and finally into the Thames River. A spill from this site, located high on the side of a hill, would be very difficult to contain and expensive to clean up. Therefore, it is recommended that this substation be curbed and the gravel base be sealed. Special valves, such as the Gedcor Imbiber Valve described in Appendix G, can be installed in the curbing to allow rain water to escape while containing hydrocarbons.

The new substation at Bldg. 29 and the transformer vault at Bldg. 173 present an even greater hazard. Located only 100 feet from the Thames River, a spill of any of the 3400 gallons of PCB present would reach the river in seconds. PCBs are especially troublesome to recover, since they sink in water rather than float. The nearby transformer bank in Vault No. 3 contains approximately 1500 gallons of transformer oil. It is recommended that all three of these stations be provided with secondary containment similar to the Wahoo Avenue substation.

Project W040I (Appendix H) has been prepared and is submitted for activity review and approval. Upon approval, this office will submit the documents for program funding.

Reference (1) describes the results of surveys undertaken by Van Houten Associates, Inc. for the purpose of determining deficiencies in the diesel and fuel oil systems contributing to pollution. A portion of the repairs recommended for the fuel oil lines has been funded through Repair Project R1-75. Repairs to the diesel oil lines have been programmed in MILCON Project P303 (FY-79), Replace Diesel Oil Piping System. To date, the remaining deficiencies have not been programmed or funded for correction. It appears that Pollution Abatement funds under the SPCC program are

available to correct the remaining spill hazards in the oil distribution and storage facilities. Details of a pollution abatement project are being developed and, upon completion, Exhibits I and II and DD Form 1391 will be forwarded to Subase for review and comment.

8.3 Oily Waste Treatment

Currently, oily waste, collected from ships and land-based facilities, is brought to Tank No. 5 in the POL Area. The wastes are held in this 750,000 gallon underground tank where primary separation is affected and the separated oil is then sold to a contractor. The wastewater is pumped from beneath the oil layer, treated with hydrogen peroxide and discharged to the base sanitary sewer.

An extensive evaluation of oily waste handling and disposal at the Subase was performed by Exxon Research Co. in August 1974 (reference (m). This study generated a proposal for an elaborate oily waste handling, treatment, and recycling facility.

During review, Northern Division felt that the Exxon proposal was too sophisticated and would cost the Subase too much to operate. An alternate system was prepared and submitted to Subase for review. Appendix I is a summary of said alternative, the concept of which was approved by the Subase by reference (n). Project W040K (Appendix J) has been prepared for submission in the Pollution Abatement Program. Upon approval by Subase, appropriate supporting documents should be submitted.